REMARKS

Claim 27 was rejected under 35 USC 112, second paragraph. The claim is amended to correct an antecedence error and, as amended, it is believed that the claim overcomes the rejection.

The art used by the Examiner in rejecting the subject claims is

A: US Patent 5,854,903 issued to Morrison et al;

B: An article by Frigioni et al, "Experimental Analysis of Dynamic Algorithms for the Single Source Shortest Paths Problem," 1998 ACM Article No. 5, pages 1-3, 5-6;

C: US Patent 6,192,043 issued to Rochberger;

D: US Patent 4,506,361 issued to Kume et al; and

E: US Patent 5,533,016 issued to Cook et al.

The rejections based on art are as follows:

Claims	Basis	Art
21, 23-26	35 USC 102	A
1, 2, 13, 14, 22	35 USC 103	A + B
3, 6, 9, 10, 12, 15	35 USC 103	A + B + C
4, 5	35 USC 103	A + B + D
7, 8, 16 – 20, 27	35 USC 103	A + B + C + D
11	35 USC 103	A + B + E

Claims 21, 23-26

Morrison et al describe a method for network optimization. The method involves consideration of offered load, and network loss probabilities. Recognizing that the numerical complexity for a solution that yields the optimum network assignments

> renders an exact solution computationally intractable, an asymptotic approximation is applied which yields a solution to the network loss probabilities and network sensitivities. A global optimization procedure is them applied using an iterative, steepest ascent optimization procedure to yields a set of virtual path routings and capacity allocations. (Abstract, lines 9 - 14).

Clearly, the Morrison et al method aims to approach the solution, i.e., the optimal solution – albeit asymptotically.

Claim 21 specifies a cost function that is related to weights, and a step of selecting those weights. In contradistinction to the Morrison et al teachings, applicants' claim 21 further specifies that this step of selecting is such that it accepts a set of control weights that corresponds to a point on said multidimensional cost function that is, or approaches, a **local minimum.**" As indicated above the Morrison et al method does not accept a local minimum as a solution. Therefore, it is respectfully submitted that claim 21, is also not anticipated by Morrison et al. It follows that claim 22-27, which depend on claim 21 are not anticipated by Morrison et al.

Additionally, as for claim 23, it is noted that the claim addresses a point on the multi-dimensional space. In the course of executing the method, the issue at each step is how to move from the present point in the multi-dimensional space to a next point in the multi-dimensional space in order to advance toward a solution. Claim 23 specifies a heuristic technique that "moves a potential solution point to outside a neighborhood of the local search." The Examiner asserts that Morrison teaches this notion in col. 9, lines 15-35. Respectfully that is not true. What the passage teaches is a local search technique, and not a heuristic. It also does not teach jumping to a point outside the neighborhood of the local search. The same is true for FIG. 2. What needs to be shown (which is NOT shown) is a local search technique, and something additional; in particular, a heuristic that countermands, or interrupts, the local search technique. Nothing like that is taught or suggested by Morrison et al and, therefore, applicants respectfully submit that claim 23 is not anticipated by Morrison et al.

As for claims 25 and 26, the passages cited by the Examiner do not demonstrate that the cost function is convex, or that its second derivative is non-negative.

Claims 1, 2, 13, 14, 22

All of the independent claims employ the term "weights," and in the current Office Action the Examiner explicitly asserted that the implied costs of Morrison et al correspond to the weights of applicants' claims.

In connection with claim 1, citing equations 3.7 through 3.10, the Examiner states that "the implied costs are generated from these equations the relating to network traffic flow; offered loads, network revenue and offered probabilities" (emphasis in original). Indeed, equation 3.10 presents an expression for evaluating c_{tl} (though the specification

does not teach what the subscript "*t*" stands for). If one were to accept that equation 3.10 expresses values for weights, one must also note that this equation is fairly complex, and that there is no teaching to the effect of "set the implied costs as determined by Equation 3.10 ... [is used] ...." It is more akin to "this is what the implied costs are." In other words, in applicants' view equation 3.10 is not reflective of a step of generating weights to be used to control the network. Moreover, it is quite clear from col. 9, lines 14-35, that the teachings of Morrison et al center on the optimization algorithm where the *offered traffic on routes* is the independent set of variables that is optimized to maximize revenue (rather than the implied costs). As stated in col. 5, lines 57 et seq.

> the focus of the methodology of the invention in this embodiment is the sizing and routing of virtual paths within a multi-service network... and the determination of rates of traffic offered to various routes connecting origin-destination node pairs.

In other words, the methodology of the Morrison et al reference is NOT one where weights (implied costs) are generated as part of the method for controlling traffic flow.

Furthermore, the methodology of Morris et al does not generate anything based on "best-neighbor" approach. The Examiner admits that this is the case, but asserts that Frigioni et al describe the best neighbor approach, and that it would have been obvious to employ the best neighbor approach of Firgioni et al in the Morrison et al system. Applicants respectfully disagree. First, as indicated above, the Morrison et al method is NOT one were implied costs are modified or generated, their effect is observed, and the implied costs are further modified in the direction of improved performance. Second, it is inconceivable that a system that employs a method for asymptotic advance to an optimum solution that mathematically interrelates numerous parameters of the network can be modified by severing the mathematical dependency of the implied costs on various parameters (as evidenced by equation 3.10) and replacing them with something else (best neighbor approach, or anything else). It is almost assured that the entire method will simply not work. Certainly, there is no assurance or even a suggestion that it will work.

It is respectfully submitted, moreover, that there is nothing in Morrison et al to suggest (i.e., motivation) that replacing equation 3.10 – which specifies a relationship of implied costs based on numerous parameters - can be replaced with any other relationship

and still allow the method to work; and certainly there is no suggestion that equation 3.10 can be replaced with a specification of implied costs based on "best neighbor" approach. Stated more succinctly, there is absolutely no motivation for replacing equation 3.10 with anything else.

Over and above these reasons, it is noted that the method described by Morrison is a "steepest descent" method (see the above-quoted passage from the abstract). A "best neighbor" approach, on the other hand, is not a steepest descent method (as applicants' specification teaches).

For the above reasons, it is respectfully submitted that claim 1 is not obvious in view of the Morrison et al and Frigioni et al combination of references. Consequently, claims that depend on claim 1 are also not obvious in view of the Morrison et al and Frigioni et al combination of references.

Independent claim 13 is believed not obvious in view of the Morrison et al and Frigioni et al combination of references for the same reasons expressed above in connection with claim 1. Claim 14 depends on claim 13.

Claim 22 depends on claim 21, introducing the "best neighbor" limitation. Based on the above remarks concerning claims 21 and 1, applicants respectfully submit that claim 22 is not obvious in view of the Morrison et al and Frigioni et al combination of references.

Claims {3, 6, 9, 10, 12, 15}, {4, 5}, {7, 8, 16 – 20, 27}, and 11

As indicated above, it is believed that

1. there is no motivation for combining references **A** and **B**,
2. references **A** and **B** are incongruous to each other (**A** teaches "steepest descent" approach, and **B** relates to "best neighbor" approach, which is not a "steepest descent" approach), and
3. incorporating the teachings of **B** into **A** will not result in a working system.

Clearly, therefore, there is no motivation of adding a third reference to modify the teachings of **B** as they are applied to **A**. In short, claims 3, 6, 9, 10, 12, 15 are believed to be not obvious in view of the **A** + **B** + **C** references, even if reference **C** does teach what the Examiner asserts it teaches; claims 4, 5 are believed to be not obvious in view of the **A** + **B** + **D** references, even if reference **D** does teach what the Examiner asserts it

teaches; claims 7, 8, 16-20 and 27 are believed to be not obvious in view of the **A** + **B** + **C**+ **D** references, even if references **C** and **D** do teach what the Examiner asserts they teach; and claim 11 is believed to be not obvious in view of the **A** + **B** + **E** references, even if reference **E** does teach what the Examiner asserts it teaches.

In light of the above amendments are remarks, applicants respectfully submit that all of the Examiner's rejections have been overcome. Reconsideration and allowance are respectfully solicited.

Respectfully,
Mikkel Thorup
Bernard Fortz

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By _____
Henry T. Brendzel
Reg. No. 26,844
Phone (973) 467-2025
Fax (973) 467-6589
email brendzel@comcast.net